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FACTORS AFFECTING IN-PATIENT STAY IN PATIENTS OPERATED FOR PEPTIC ULCER PERFORMATION.

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ABSTRACT… Objectives: Recognizing the risk factors affecting the in-hospital stay of the patients operated for peptic ulcer perforation. **Study Design:** Cross Sectional study. **Setting:** General Surgical Wards, Nishtar Hospital Multan. **Period:** From 15th November 2018 to 5th of March 2019. **Material & Methods:** A total of 100 patients of all ages who had a peptic ulcer perforation were included. Patients with a perforation that wasn't attributable to a peptic ulcer e.g. malignancy or gastrinoma were excluded. Patients were asked about their smoking and drinking habits. Data was collected about various risk factors of peptic ulcer, their co-morbidities and the medications. **Results:** Gender, smoking, alcohol intake, H-pylori infection, size & site of perforation did not have a significant effect on hospital stay days. In patient stay days differed in groups based on comorbidities and medication. A weak correlation was found among age and stay days. **Conclusion:** Patients with complain of COPD and other pulmonary complications have a longer hospital stay in the hospital. The association of arthritis and hypertension could not be demonstrated comprehensively.

Key words: COPD, Helicobacter Pylori, NSAIDS, Peptic Ulcer Perforation, Post-op Hospital Stay Days, Rheumatoid Arthritis, Steroids, Smoking.

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INTRODUCTION

Peptic ulcer disease results from an imbalance between the pepsin production and the mucosal defense barriers. In the United States, approximately 5 million adults suffer annually from peptic ulcer disease and 500,000 new cases with 4 million recurrences are reported each year.[1] The incidence of peptic ulcer has decreased in the recent years due to the advancement in the treatment modalities, introduction of proton pump inhibitors, H-pylori eradication therapies and availability of endoscopic modalities but complications like ulcer perforation still remains as a major problem in the health care system. The reason can be multiple risk factors associated with the disease.[2]

The pattern of perforated peptic ulcer is different in different geographic areas. The patients are usually young in the developing countries and are smokers mostly. While in the developed world where the population is more informed about the disease, its progression and its life threatening sequel, the people affected are usually elderly and present mostly with the history of medication intake I.e. NSAIDS.[3]

Perforated peptic ulcer is a cumbersome complication which affects 2-10% of the persons affected with the disease and it has a mortality of approximately 10%.[4] As it is a life threatening complication, it needs proper attention and timely management of the patient to save his life. Its diagnosis is a bit challenging due to marked tenderness and shock like condition of the patient. Although a plain chest x ray erect is diagnostic in 75% of cases showing air under diaphragm.[5,6]

There are multiple risk factors associated with the increased in-hospital stay of the patients operated for peptic ulcer perforation. Very little information is available regarding the risk factors affecting the

in-hospital stay of the patients of the peptic ulcer disease. Our study was aimed at recognizing the risk factors affecting the in-hospital stay of the patients operated for peptic ulcer perforation. The association of arthritis and COPD has not been seen previously as the factors increasing the hospital stay of the patient with perforated peptic ulcer in Pakistani population.

MATERIAL & METHODS

This cross-sectional study was conducted at the General Surgical wards in Nishtar Hospital Multan from 15th November 2018 to 5th of March 2019. A total of 100 patients of all sizes who had a peptic ulcer perforation were included. Patients with a perforation that wasn't attributable to a peptic ulcer e.g. malignancy or gastrinoma were excluded. Age and demographic details were recorded as well. Patients were asked about their smoking and drinking habits and data was collected about the co-morbidities the patients were having and the medications they were taking. Patients underwent the surgical repair of the perforation by the Rousseau graham patch repair and after that their stay days in the hospital were calculated. The data was analyzed using SPSS-20.

RESULTS

There were 81 (81%) males and 19 (19%) females. Most were of middle age group (58.9±18.7 years) with BMI of 28.1±3.3 kg/m^2. Eighty five (85%) of the patients were smokers and 13(13%) gave the history of alcohol consumption. Fifty four (54%) were suffering from various comorbidities (22% with COPD, 20% with Arthritis, 9% with both COPD and Arthritis and 3% Hypertension). On taking history of medication we found that 62% of the patients were on some form of medication; NSAIDs 20%, steroids 33% and 9% were using both NSAIDs and Steroids. 67(67%) patients were tested positive for H-pylori. After surgery we found out that in 23% cases had gastric perforation while 77% had perforation in duodenum. 81% of the perforations were <1cm in diameter, rests were larger than this. Average number of hospital-stay was 9.2±4.5 days (Tables-I,II).

Gender, smoking, alcohol intake and H-pylori infection, each considered independently, did not have any significant effect on the number of hospital-stay days. Similarly, characteristics of the ulcer, like size and site of perforation did not alter the response variable when analyzed through t-test (Tables-III).

Number of stay days differed significantly among different groups based on comorbidities (p = 4.5 x 10-6), being highest in patients with Arthritis & COPD (12.4±4.0 days) lowest in patients with no comorbidities (6.8±4.1 days). In groups based on medication, in-hospital days differed significantly (p =2.5 x 10-5), with NSAID & Steroid group having the longest (12.4±4.0 days) and those taking no prior medication shortest stay (6.6±4.0 days). (Table-IV) (Figure-1,2)

For understanding the change in hospital stay days as the function of age and BMI univariate linear regression modelling was done. There was weak correlation found between age and stay days (R^2 = 0.31, p = <0.001). There was no correlation found between BMI and number of days at the hospital (Figure-3,4).

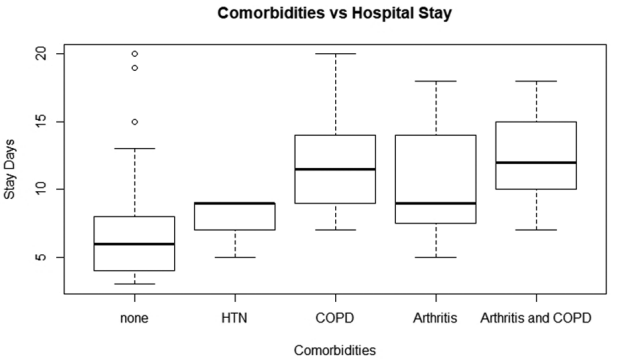

Figure-1. Comorbidities versus hospital stay.

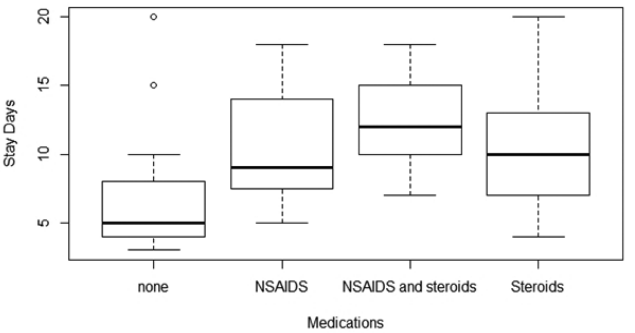

Figure-2. Medications versus hospital stay.

Variable	No.	%
Gender		
Male	81	81.0
Female	19	19.0
Smoking		
Smoker	85	85.0
Non-smoker	15	15.0
Alcohol		
Alcoholic	13	87.0
Non-alcoholic	87	87.0
H-pylori status		
Positive	67	67.0
Negative	33	33.0
Site of Perforation		
Gastric	23	23.0
Duodenal	77	77.0
Size of perforation		
<1cm	81	81.0
>1cm	19	19.0
Comorbidities		
None	46	46.0
COPD	22	22.0
HTN	3	3.0
Arthritis	20	20.0
Arthritis & COPD	9	9.0
Medications		
None	38	38.0
NSAIDs	20	20.0
Steroids	33	33.0
MSAIDs & Steroids	9	9.0

Table-I. Demographic information of the patients (n=100).

Variable	Mean±SD
Age	58.87±18.70
BMI	28.09±3.28
Hospital stay (days)	9.19±4.52

Table-II. Mean & Standard deviation of age, BMI and hospital stay.

Variable	Mean±SD	P-Value
Gender		
Male	9.4±4.6	0.28
Female	8.3±3.9	
Smoking		
Smoker	9.3±4.4	0.63
Non-smoker	8.4±5.2	
Alcohol		
Alcoholic	8.7±3.7	0.63
Non-alcoholic	9.3±4.6	
H-pyloric status		
Positive	8.7±3.7	0.63
Negative	9.3±4.6	
Site of Perforation		
Gastric	9.5±5.1	0.75
Duodenal	9.1±4.4	
Size of perforation		
<1cm	9.2±4.7	0.78
>1cm	8.9±4.0	

Table-III. Stratification of gender, smoking, alcohol, H-pylori status, site of perforation and size of perforation according to hospital stay. P-value obtained by Student t-test

Variable	Mean±SD	ANOVA P-Value
Comorbidities		
None	6.8±4.1	<0.001
COPD	11.8±3.6*	
HTN	7.7±2.3	
Arthritis	10.5±4.0*	
Arthritis & COPD	12.4±4.0*	
Medications		
None	6.6±4.0	<0.001
NSAIDs	10.5±4.0*	
Steroids	10.5±4.1*	
NSAIDs & Steroids	12.4±4.0*	

Table-IV. Comparison of comorbidities and medications according hospital stay. Marks those which are significantly different than 'None' group by post hoc Tukey's Test

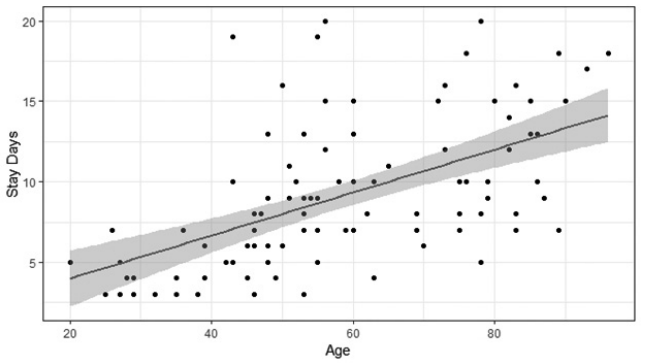

Figure-3. Age versus hospital stay.

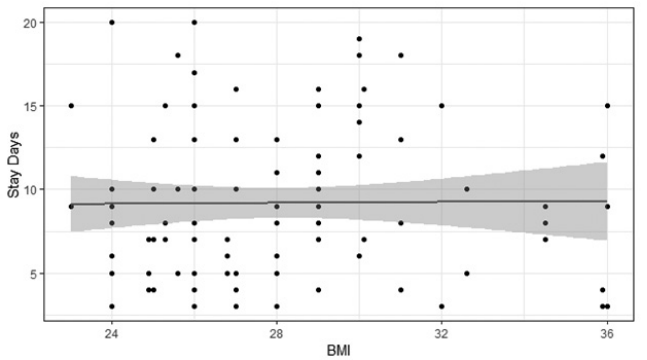

Figure-4. Body mass index versus hospital stay.

DISCUSSION

Peptic ulcer is a common disease in areas where awareness is low about its risk factors and signs and symptoms. However its incidence is decreasing in urban areas where the use of PPI is common and patients get H-Pylori eradication therapy in time. Perforation is the common lethal complication of peptic ulcer disease and its outcome has not changed much. We demonstrated in this study that the hospital stay of the patients increases with perforation of peptic ulcer disease if there are any comorbidities associated. The study is unique in itself as there is limited information available regarding the increased hospital stay of the patients operated for peptic ulcer disease after perforation.

The age range of the people presenting with perforated peptic ulcer is 58.9±18.7years comparable to the many studies looking at the association of co morbidities with the PPU surgery.[7,8] Age is an important prognostic factor post-operatively. Most of the patients presenting with PPU were male in our study like so many other studies as males have increased incidence of peptic ulcer.[9-11] 67% of the patients presenting with PPU were having H-pylori infection which is comparable to the study conducted by Gisbert et al in which 62% of the patients were H-Pylori positive.[12] The incidence of peptic ulcer perforation has decreased markedly with H-pylori infection due to the H pylori eradication therapies although NSAIDS are still an important risk factor in older age patients which causes complications.[12,13] Andersen et al wrote that alcohol intake can lead to bleeding in peptic ulcer and can lead to perforation.[14] In our study 13% of the patients gave history of alcohol consumption.

Peptic ulcer perforation is a morbid complication and if not treated timely can prove fatal. In this study we tried to figure out the factors increasing the in-hospital stay of the patients. Our results showed that the in-hospital stay increases markedly if the patient has other co-morbidities involving other organ systems.

In our study 54% of the patients were having other co-morbidities out of which COPD was in 22% of the patients. The hospital stay days were maximum in patients having COPD. In other studies conducted by Park &Kang[15] and Ko et al[16] reported that Pulmonary diseases are among the most common co morbids associated with poor healing after PPU surgery. Our study showed increased hospital stay with arthritis as well. But other studies could not show arthritis as a risk factor for increased hospital stay. Hypertension is another co-morbid condition which can increase the in-hospital stay of the patients. Some of the studies were in affirmation with our findings that hypertension may not increase the in-hospital stay significantly however a few studies figured out hypertension as an important co-morbid and a cause of increased mortality.[17]

CONCLUSION

Most of the risk factors did not affect the post-op healing time after peptic ulcer perforation. Only age, comorbidities and medications had a significant effect on the hospital stay days.

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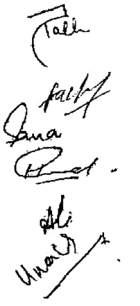
1	Talha Kareem	Author	
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